

**STUDY OF CORRELATION BETWEEN EGFR MUTATION STATUS AND P-AKT, TTF 1 IN ADENOCARCINOMA LUNG AND TO COMPARE THE QUALITY OF LIFE BETWEEN PATIENTS ON TKI AND CHEMOTHERAPY**

**Back ground**—Treatment of advanced carcinoma lung has been disappointing till last decade. The discovery of TKI's has changed the natural history of this disease especially in patients who are EGFR mutation positive. Data regarding EGFR mutation testing and response to treatment depending on EGFR mutation status is limited from India. EGFR mutation testing by RT-PCR is expensive and time consuming. Surrogate tests which are less expensive and less time consuming , which can replace RT- PCR of EGFR mutation analysis will be of great importance especially in countries with limited resources. P-AKT and TTF-1 by IHC have shown some significant promise in detecting EGFR mutation.

**Method** – This is a prospective single institution study where 73 patients with adenocarcinoma of lung were studied for EGFR mutation and treatment response, in which treatment was started on the basis of EGFR mutation status, that is in patients who were EGFR mutation positive were started on TKI and those who were negative were started on chemotherapy. 101 patients were included for analysis of correlation between EGFR mutation status and P-AKT and TTF-1. The quality of life (QOL) was also assessed in TKI and chemotherapy group by using questionnaire which was standardized to Indian population.

**Results** – EGFR mutation in our study population was 48.5%.. The one year OS and PFS of study population was 72.6% and 51.1 % respectively. The patients in TKI group had better one year PFS and OS (61.2% and 80.7% respectively) compared chemotherapy group (42.4% and 55.9% respectively) even though it was statistically not significant. The major toxicity in TKI group was

skin toxicity which was much higher with erlotinib compared to gefitinib. In the correlation study of EGFR mutation status and IHC, negative predictive value of TTF-1 and P-AKT was very high(>90%). In our study, QOL was better in TKI group compared to chemotherapy group.

**Conclusion** – EGFR mutation based treatment approach resulted in improved survival in both TKI and chemotherapy group, which emphasizes the importance of doing EGFR mutation testing in upfront setting. TKI arm compared to chemotherapy group had increased PFS and OS, and also had better quality of life. TTF-1 and P-AKT has high negative predictive value in detection of EGFR mutation, indicating that in patients who are above IHC negative, EGFR mutation testing can be avoided and started on chemotherapy, if the treatment needs to be started urgently.